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The
Agricultural and Industrial
Community for Arrested
Cases of Tuberculosis and
Their Families



A STUDY



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FOREWORD.

At the very outset of its work with the discharged disabled soldiers afflicted with tuberculosis the Federal Board recognized that the problem of reeducation and placement in employment of these men is one that requires the best expert advice and assistance which the country affords. In order to provide this the National Tuberculosis Association was requested to detail to the office of the Federal Board its field secretary, Dr. H. A. Pattison, who has been giving his entire attention to this phase of the work of the Board under the vocational rehabilitation act.

To direct and assist in the discharge of this responsibility an advisory committee of persons of long experience and national reputation in the field of tuberculosis was appointed, all of whose members have given of their services with enthusiasm. The members of this advisory committee appointed by the National Tuberculosis Association are: Fred M. Stein, chairman; W. H. Baldwin, Dr. H. M. Biggs, Dr. Vincent Y. Bowditch, Col. George E. Bushnell, Dr. Charles J. Hatfield, Dr. A. J. Lanza, Dr. David R. Lyman, Dr. James A. Miller, Mr. Douglas McMurtrie, and Dr. George M. Price.

Any study of the problems relating to the campaign against tuberculosis inevitably leads to a consideration of the colony as a possible, and perhaps necessary, part of the campaign. The study as presented here was made under the direction of the Advisory Committee to the Federal Board, which committee passed the following resolution:

That it is the sense of the Advisory Committee that the plan for an industrial community for tuberculous people who are able to work is replete with interest and deserves further study. It is recommended that the plan be published and that discussion be invited from all agencies interested in the subject.

Criticisms, opinions, or suggestions will be very much appreciated and should be sent to the National Tuberculosis Association, 381 Fourth Avenue, New York City, or to the Federal Board for Vocational Education, Washington, D. C.

C. A. PROSSER, *Director*.

THE AGRICULTURAL AND INDUSTRIAL COMMUNITY FOR ARRESTED CASES OF TUBERCULOSIS AND THEIR FAMILIES.

By H. A. PATTISON, M. D.

[Issued under direction of the Advisory Committee of the National Tuberculosis Association as a contribution to the study of problems relating to the rehabilitation of the tuberculous.]

Within the past 10 years a number of investigations have been made of the conditions—physical, industrial, and social—of patients who have undergone treatment for tuberculosis in sanatoria. The end in view has been to secure first-hand, accurate knowledge of their physical condition within a certain number of years after discharge as compared with their condition on discharge, their living conditions, their earning power, employment and its conditions, the expectations of health and life after discharge, the general value of sanatorium treatment, and the uncovering of weaknesses in present methods. (See Appendix.)

The evidence is overwhelming that the campaign against tuberculosis has not yet developed adequate plans and facilities for the post-sanatorium treatment of patients. It is being more and more clearly established that it is the environment of the sanatorium graduate and his method of spending his time after working hours that most frequently determine his fate rather than the work itself. While in the sanatorium it is comparatively easy to follow the prescribed regimen. All patients are doing the same things. Even the physicians, nurses, and other employees conform to many of the rules laid down for the guidance of the patients. Often the nurses, physicians, and employees have themselves had active tuberculosis, and there is, therefore, a sympathetic understanding between the two groups. But when the patient returns to his home he is a man apart if he continues to live as he lived in the institution. Unless his family is an exceptional one the family life will not be adapted to the man; he must adapt himself to the life of his family. He wants to participate in the activities his friends enjoy. It may be "movies," card parties, dances, picnics, tramping trips, bowling, baseball, or what not, but nearly all involve the element of contest, and the recently arrested case of tuberculosis can not safely compete with his sound companions. The almost inevitable result is reactivation of the disease.

If he could work and mingle with men in like condition when he leaves the sanatorium his chances for permanent arrest would be

greatly increased. The months and sometimes the years required to bring about permanent arrest must be carefully guarded. The work, the rest, the play, the whole daily round must be so arranged as to contribute to the establishment of a sound health. The value of commingling of quiescent cases is demonstrated at Saranac Lake where so many have remained and entered the commercial and civic life of the village. Tuberculous men and women who have lived comfortably, prosperously, and happily for from 1 to 25 years are found there. The doctor, nurse, architect, city engineer, public stenographer, photographer, jeweler, liveryman, chauffeur, waitress, tailor, clerk, and merchant have worked out their physical and economic salvation. Much the same thing is observed at Colorado Springs, Albuquerque, and Phoenix.

Many men and women are able to resume their former occupations if their surroundings are hygienically favorable. The particular position or job which was held is often the cause of breakdown, and not the occupation as such. Some can regain their health only by finding entirely new vocations. Practically all, however, require part-time work under medical and nursing supervision in a well-chosen environment until they are hardened up to do a full day's work every day. There is at present little provision for such "industrial convalescence." The sanatoria themselves offer a few openings for their ex-patients, but these provide for a very small percentage. The garment shop of the Committee for the Care of the Jewish Tuberculous is conspicuous alike for its success and its loneliness in the field. Similar shops should be established in other large cities.

But there would still remain a group that needed different treatment. If tuberculosis is, as some one has put it, "a disease of wages," it is also a disease of congested areas. There can be no question that many thousands of tuberculous people and their families would be vastly better off in suitable rural regions. Their children, almost always infected, would have a better chance to halt successfully the growth of implanted germs.

For years past the literature of tuberculosis has contained references to the need of some sort of "colony" in which sanatorium graduates might find the environment needed to restore the fullest measure of health. At first the references indicated a vague groping for a solution of problems not fully comprehended. The earliest thought was of the agricultural colony, but it was soon realized that the farm alone was not sufficient. The urban dweller has little inclination to till the soil; nor is it easy for the substandard man to learn a vocation so wholly new as farming. Then, too, experience has proved that many tuberculous people get on better in factories than out of doors, and very much better in sedentary clerical posi-

tions than in factories. This of course is not because outdoor life is not in itself more desirable and more beneficial than indoor life, but because most outdoor occupations require severe physical exertion, and often subject the worker to undue exposure to heavy rains, extremes of heat and cold, strong winds, etc. Hence diversified occupations must be available and the trend of opinion has been directed toward the combined industrial and agricultural community.

It is interesting to follow the development of ideas. I shall refer only briefly in the text of this bulletin, however, to the literature on the subject. Those who are particularly interested will find in the appendix extracts from reports, magazines, and books.

In 1908 Dr. A. M. Forster put theory into practice by providing supervised farm work at Eudowood for selected cases. The scheme has been continued under Dr. M. F. Sloan and has been successful medically and economically. The work has consisted in hotbed planting, transplanting, gathering, and assorting vegetables; canning; poultry, hog, sheep, and rabbit raising; berrying and fruit culture; grain raising, silo filling, dairying, and repairing buildings and fences.

It seems a misnomer, however, to call this development a "colony," for during the 10 years previous to 1918 but 120 patients had received this supplementary treatment. It is rather a department or adjunct of a well-rounded sanatorium project, and an example which many other superintendents and trustees might well emulate.

At the sixth annual meeting of the National Tuberculosis Association Dr. Forster, discussing aftercare, remarked that "in conjunction with sanatoria and hospitals there should be developed colonies where cases may, to a large extent, continue under the advantages of institutional care, and at the same time be either entirely or largely self-supporting." During the same discussion, Dr. H. Holbrook Curtis said:

I have no trouble in thinking of what to do with patients who are to be cured; but I find that there is no provision made in any sanatorium with which I am connected, or ever heard of, as to what the patient should do for himself after he left. It is my opinion that farms should be established and these farms should be supported by the State.

Again, at the eighth annual meeting of the National Tuberculosis Association, Dr. Forster, discussing a paper, remarks that—

Dr. Vogeler, in one of his conclusions, says that the farm colony idea is impracticable. I am not sure by what subtle means of deduction he has reached that conclusion. I do not believe that he has tried the farm colony or that he can cite any case where the farm colony has failed. I think he is putting the case a little too strongly. At Eudowood, where the farm colony idea has been very carefully worked out and put into practice, I believe the opinion is that during the six years of its existence it has been highly successful.

Another of Dr. Vogeler's objections is that we can not get city people to work in the country. He should go further and explain just why you can not get city

people to work in the country. Various efforts to institute a movement back to the land have failed largely through lack of sympathetic appreciation of the point of view of the city slum dweller. As I pointed out in the paper to which Dr. Vogeler has referred, it is out of the question to look for success where you take the city dweller into the country and there leave him unaided to work out the problems of his new environment.

However visionary our ideas may be as to the merits of agriculture as a permanent form of employment, there can be no argument as to the value of the farm colony as a means of prolonging the term of treatment. With the present cost of sanatorium treatment it is not justifiable to keep patients in idleness after they are in physical condition to do some labor.

At the first annual meeting of the national association, Dr. Herbert Maxon King had thought further than the farm colony for a solution of the problem, but merely speculated "on the results which could be obtained, theoretically at least, in the ideal sanatorium with provision for industrial features."¹

Dr. S. Adolphus Knopf suggested, in 1912, "intermediate stations" where the recovered tuberculous patient could find work with which he is familiar. (Appendix.)

Dr. Charles F. Bolduan at the tenth annual meeting remarked:

Industrial colonies in the country, open-air factories in the cities, cooperation with those providing outdoor employment—all have carefully to be considered, and probably all will have to be utilized to meet this great need.

Discussing Dr. Bolduan's paper, Dr. F. H. Heise, of Trudeau, said:

When you consider that the tuberculous patient, and especially the poor tuberculous patient with a family, is one of the hardest things on earth to keep isolated—that is, to keep away from his family and friends—you realize that if you want to get right down to the bottom of it you have to provide for the patient and make some provision for the family who are close to him. Probably this might take the form of industrial colonies where the patient could maintain himself and where the family could be employed to help maintain themselves. A company at Saranac Lake at the present time has awarded a prize of \$500 for some method of solving such a problem; that is, of giving employment to the tuberculous patient after he has left the sanatorium, to make him happy and comfortable, and give him a chance to carry out the treatment that he knows he needs and ought to take.

The World War has stimulated interest in the colony idea for disabled soldiers and sailors, particularly in England, and there has appeared a rather extensive literature, as will be seen by reference to the appendix. I would direct attention, however, particularly to a statement by the commissioner of immigration at the port of New York, who says:

All of the warring countries are emphasizing the necessity of returning the soldiers to the land. In England, Australia, and Canada the farm colony is

¹ Such an institution, let us say, should consist of three main divisions, infirmary, pavilion, and industrial department, the first two forming complete units each, the last divided into as many distinct units as there are branches of industries undertaken. For instance, agriculture in its various branches; stock-raising, including poultry farming, bee culture, etc.; certain manufacturing industries, and the administration of the institution itself in its various phases. (Dr. H. M. King.)

being developed. Experts have submitted that the soldier will not take up an unbroken piece of land isolated from his fellows. Official commissions in England and Australia are developing plans by which the State will sell to the returning soldiers ready-made farms of from 3 to 30 acres which one man can cultivate. Farms are grouped as a community with educational, recreational, and cooperative agencies for marketing and buying. Men are sold farms with a house, barn, and sufficient capital on easy terms, the State advancing nine-tenths of the capital to be repaid on long-term installments. The experience of Australia and of Denmark demonstrates the success of this plan. In the United States such colonies should be located in New England, the Southern, Central, and Western States, each adjusted to a special kind of farming.

Attention is also directed to the opinion of P. C. Varrier-Jones, who has made the Papworth Hall Colony for the Tuberculous a success:

What is the remedy? What but to graft on to our existing sanatoria the colony principle of employing patients at their own or allied trades.

There is not the slightest doubt that soldiers will stay in a village community, always provided that the amenities of life are there. Social surroundings, healthy environment, steady, and not too laborious work, freedom of conscience, home life remodeled on sound, healthy lines, all these things should be within their reach.

The scheme is an ambitious one, but this is the day of great enterprises. We hear a good deal about the establishment of village communities for disabled men. For no class of the disabled is a life sheltered, and yet active, protected and yet self-respecting, so necessary as for the tuberculous. The man who has suffered the loss of a limb, or the loss of sight, may still find a place in his old surroundings, if properly assisted and trained; the man suffering from shell shock may need long convalescent treatment away from the stress of town life, but eventually he will probably be able to resume his old occupation; the consumptive, alone, if seriously attacked by disease, can never hope for even a modicum of health and strength in crowded streets and ordinary workshops; the consumptive alone, of all this sad procession of broken lives, can never return to normal conditions without endangering his family and his fellow-workmen, without involving not only himself but others in disaster.

Let communities be started in which our consumptive soldier can live in his own home, shielded from the fierce competition of the outside world, a self-respecting worker, an economic asset. Let employment be found, the model factory erected, the hours of toil properly regulated, a fair wage paid. In such villages his children can be carefully protected from infection by open-air schools supervised by a competent health-visiting staff. The man's leisure hours can be made glad by recreation arranged by the colonists' own committee, and his life agreeably spent. "A mere utopian dream," they say, "and how do you know that the consumptive ex-soldier will submit even to such conditions?" I say that he has already done so, that requests for admission to the Papworth Colony now far exceed the accommodation. "In that case," the critic answers, "the demand will always be greater than you can possibly meet." The demand is great. Is that a reason why we should not try to meet it? We sincerely want to do well by these men; shall we stop at wanting, and put forward no practical solution? "But the expense will be ruinous!" So is the evil; so too the cost of the evil.

If one village community of this kind can be shown to carry within it the germ of success, the idea will surely fructify and similar communities will

spring up round existing sanatoria or in other suitable spots. A large country house, surrounded by gardens and grasslands, as at Papworth, forms an excellent nucleus, and such houses often come into the market in these days of change. The village can to a large extent be built by the colonists themselves. They begin by building shelters, they may go on to building cottages—specially designed shelters and cottages; and then to making the furniture for these shelters and cottages. The joy of seeing useful and beautiful things growing under their hands, the development of muscle and vitality which comes with work carried out without fatigue, the cheerful surroundings, the sense of comradeship; and, best of all, the prospect of a return to a happy family life, are most powerful aids to nature in driving out the ravager, where this is still possible, or in limiting his ravages when he is too securely entrenched to be dislodged.

Examination of the literature will indicate that no one has presented any very concrete plan or program for a complete village with the exception of one man in this country and one in England. The former is Dr. Bayard T. Crane, president of the Rutland Private Sanatorium Association. This association is composed of doctors, nurses, and managers of eight private sanatoria and boarding houses in Rutland, Mass. It is not a stock company, but is incorporated under the laws of Massachusetts as a charitable and benevolent association, not for profit. It is under the jurisdiction of the State board of Charities and is supported by voluntary contributions.

The association owns 90 acres of arable and wooded land upon which are a farmhouse, barn, and some stock, dairy, and farm implements. A residential, recreation, and workshop building, 90 by 35 feet, has been built and partially equipped. On the first floor there is an office and gift shop; a large recreation room with an adjoining workroom which may be combined into an auditorium seating about 200 people, and there is also a large glassed-in porch. The basement contains the heating plant, storage room, and carpenter shop, and also a pottery glazing equipment. The third floor has a complete house-keeping arrangement with living quarters for eight men. There are separate apartments for the matron and cook. There is also a library with 500 volumes. Effort is made to provide for remunerative occupation either for arrested cases or members of their families. The matron's husband, for example, is a patient, and another patient's daughter acts as secretary and stenographer. Men who reside in this building are all arrested cases and receive remuneration for the work they do, and all nonresident patients who are able to work more than 10 hours a week are paid.

At present the work done in this building is chiefly occupational therapy—weaving, basketry, pottery, etc. An autobus owned by the

NOTE.—“It is kinder to the returned tuberculous soldier and better for the community that whenever possible he should be given every facility to earn his living and taught a trade if necessary. The village community system appears to present several advantages for this purpose.” (From an editorial in the Journal of the American Medical Association, Feb. 8, 1919.)

association brings from the various sanatoria in the town those patients that are able to take this form of therapy.

Last summer about 40 acres were under cultivation, and a considerable amount of the work was done by the patients.

No direct charges are made to the patients for the benefits of this plan. The privilege is open to about 90 nonresident patients in the town. Some bedside instruction is also given in the constituent sanatoria.

On contiguous property a sanatorium for 125 patients is under construction by the Central New England Sanatorium (Inc.), also a corporation not for profit. This sanatorium is equipped to maintain a sanatorium essentially for middle-class or wage-earning men and women of limited means who will pay a certain part of the per capita cost. It is planned to provide under model conditions physical and medical care of a particularly fine character.

The Crane plan, however, does not, I apprehend, contemplate a complete and distinct community unit. The colony is in and a part of the village of Rutland.

The celebrated British landscape architect and planner of estates and cities, Thomas H. Mawson, has presented a plan for "Industrial villages for partially disabled soldiers and sailors" in a book entitled "An Imperial Obligation." (See appendix.)

Industrial communities have developed rapidly in this country. Many of them have grown about a single industry for the sake of that industry, such as a steel mill, coal or mineral mine, etc. The converse proposition is the one I wish to offer—*the development of industries around a community for the sake of that community*, which is to be made up chiefly of arrested cases of tuberculosis among soldiers, sailors, and civilians. Those soldiers and sailors who are substandard physically because of other forms of disability than tuberculosis would not be debarred, but the totally disabled epileptic or mentally deranged could not be received. There would also be perfectly well people occupying executive positions or placed in jobs such as were required to keep processes going.

This proposition is an ambitious scheme which one might well approach with trepidation, but I have nevertheless addressed myself to the absorbing task of suggesting the main features of a plan.

The community should be complete within itself, yet of course, and necessarily, in immediate touch with other neighboring villages and cities.

Topographically it should be well situated upon elevated, hilly ground with several acres of woodland, and, if possible, with an active but small river winding through it. The tract should be located within 100 or 200 miles of some large city and not in an isolated corner of a far-western State. Pioneering has been fatal to

some colony projects and almost certainly would be disastrous to this one. It should be upon a line of railroad and preferably a main line, with ready accessibility to raw materials and markets.

The village proper should be laid out according to modern ideas of town planning to care for five or six hundred population almost immediately, with possibilities for expansion to 4,000. Its general features, in my opinion, should conform to those of other American towns, rather than to English garden cities. While the homes should be diverse in design, the architectural tout ensemble should be harmonious and artistic. In this it would differ decidedly from the ordinary American communities which have grown without plan or forethought. It would differ likewise, in that its water supply and sewerage system would be modern and complete from the standpoint of sanitary engineering.

The department of health should be model in every respect and be given a place of honor coequal in importance with the industrial phases of the community. Conservation and restoration of man power would be given first consideration.

There would be diagnostic, pathological, and research laboratories. The director of the department would be given as many medical assistants and public health nurses as the growth of the community required. Every person (man, woman, or child) who came to take up residence would be given a complete physical examination, including stereoscopic chest plates and biologic tests. Periodic reexaminations and special examinations when indicated by the appearance of symptoms would preserve a life history of the "human machine," making it possible to reduce greatly the morbidity and mortality rates in comparison with other industrial towns of like size.

Under such conditions an unusual opportunity would be offered for the development and application of psychological, trade, efficiency, and fatigue tests.

The population would be drawn largely from the sanatoria of neighboring states. If located near New York City, for example, there are about 140 sanatoria in New York, New Jersey, Pennsylvania, and Maryland from which to draw cases. There were between 20,000 and 25,000 admissions to these sanatoria in 1917, and presumably about an equal number of discharges. There are also many tuberculous people in our cities who for one reason or another can not be given sanatorium treatment, yet who could avail themselves of the opportunities offered in a colony for part-time employment under medical supervision. Several sanatorium superintendents with whom the colony idea has been discussed are strongly of the opinion that there would be a constant waiting list of those wanting residence.

While the population must be drawn from many sanatoria and dispensaries, a sanatorium should be built in or near the village. The community sanatorium would be planned to embody the best ideas in construction and management. There is now under way a movement to classify sanatoria according to certain standards of efficiency. This new sanatorium would be planned to represent the highest present-day standards, which means that it would not be "monumental" in character, but one of simplicity, comfort, and utility. If more than one institution were needed, different types of construction could be shown. Ultimately there would be a small general hospital with a wing or department for infectious and contagious diseases.

Miss J. S. Whitney and Mr. Philip P. Jacobs, of the National Tuberculosis Association, and others suggest that since this community is for arrested cases of tuberculosis and is to be a health town there should be no sanatorium, but rather, a general hospital. Those cases that developed symptoms of reactivation would be given treatment in their own homes or emergency treatment in a special ward of the hospital until the flare-up subsided. This is an excellent suggestion worthy of careful consideration. For the full rounding out of the educational features of the community, however, a sanatorium would, in my opinion, be an ultimate if not immediate necessity.

Schools of the open-air type would be an important demonstration feature. One of the aims would be the training of arrested cases of tuberculosis to take positions as teachers in open-air schools of other cities.

Special training courses would prepare men and women to give occupational therapy and prevocational training in sanatoria, thus sending forth missionaries to prepare sanatorium patients for the colony. The results obtained by the Reconstruction Division of the Army with occupational therapy make it safe to prophesy that similar measures will be more rapidly adopted in civilian sanatoria than heretofore. Male instructors are needed now and there are few to be found. Sanatorium graduates may be trained in our village for this work.

Another educational feature would be special postgraduate courses for physicians similar to the Trudeau School. There would also be special courses for lay workers in the antituberculosis campaign. The tuberculosis institutes of the National Tuberculosis Association might well hold half of each course in such a community.

Of prime importance to the success of the project are its industries, for, after all, man must live, if not by the sweat of his brow, at least by "insensible perspiration." Experience has proved that arrested cases of tuberculosis can "carry on" in industries of lighter character

if the environment and the regimen are proper. One has only to glance through the Register of American Manufacturers to realize the possibilities. Those secured would depend upon the location of the community and the "leads" discovered and followed up by the director of industries. Undoubtedly the trustees would have to develop one or more shops. Manufacturers, however, would be given inducements to embark in business in the village. Let it be clearly understood that a dominant industry must be assured before plunging into town development. Subsidiary enterprises will not be difficult to find.

One specific possibility should be mentioned, and that is a printing establishment built for or by the National Tuberculosis Association, which itself contracts for tens of thousands of dollars' worth of printing annually. Other printing contracts could be secured from neighboring State associations and from sanatoria.

Once industries are started that give employment to 100 or more people a community of some sort is assured. Other contributory occupations at once become a certainty. Houses must be built for the families of workers, streets laid out, and sidewalks made. Stores must be developed along with all the other various and sundry activities that go to make up a village, a town, or a city. Consider the possibilities of employment outside the factories as the community grows.

Physicians.	Butchers.	Hotel employees.
A surgeon.	Druggists.	Maids.
Nurses.	Stationers.	Cooks.
Teachers.	Jewelers.	Chauffeurs.
A lawyer or two.	Photographers.	Station agents.
Bank clerks.	Clerks.	Telegraphers.
A Protestant clergyman.	Plumbers.	Telephone operators.
A Catholic clergyman.	Painters.	Common laborers.
Hardware merchants	Engineers.	
Grocers.	Barbers.	

We have not touched upon the agricultural possibilities. The first thought of the general practitioner, and, until recently, of some tuberculosis experts has been "light outdoor work" related to agriculture, horticulture, or animal husbandry. Theoretically the idea is sound, but heretofore has not been practicable for the majority of cases, because they are tradesmen, professional or industrial workers untrained in farming. That lack of training, as well as insufficient capital, makes it impossible for them to go into business themselves. To work for others means long hours, hard work, and poor pay.

My conception of a farm colony that has any chance of success is one in which colonists are grouped upon a large farm tract, which has been subdivided into smaller tracts, ranging in extent from 2 or 3 to 30 or 40 acres, all under the management of a farm expert.

Each man would be trained to specialize along certain lines and be paid a nominal wage with subsistence while learning general farming. There would be general crop production, glass and truck gardening, dairying, hog and poultry raising, beekeeping, and nursery and greenhouse development.

The produce would supply the village and any surplus would be shipped to outside markets. The farm hands would also be feeders to the village commercial life. As patients became proficient and physically capable, they would be encouraged to rent or purchase farms within a few miles of the village where they would be entirely independent, but within reach of counsel when needed.

John Molitor in *Housing in Relation to Health and Morals*, writes:

Whatever we are trying to accomplish or to do for the benefit of the people leads us by one path or another to the housing problem. The place in which man or woman dwells is vital to the character of health and of all that follows from bad health. We find that depressed vitality is a most fruitful cause of social evil; bad housing is one of the direct causes of depressed vitality.

Cleanliness is not only a condition of health but of self-respect. Cleanliness, health, morals, self-respect, and manners are all immensely depressed by bad housing, and are correspondingly raised when the environment is improved.

Not alone in the congested areas of our great cities are there to be found bad housing conditions. The writer during a practice in a small community has had to drive chickens from the accouchment room, unprotected by a screen door. Every country doctor is familiar with the all too common practice of farmers' wives who fill the sash crevices of bedroom windows with cotton or paper to keep out the winter's cold.

The Dunn County (Wis.) survey indicated a higher death rate from tuberculosis in 10 rural townships than the city of Milwaukee and several lesser cities of Wisconsin. The White County (Ill.) survey discovered an amazing incidence of tuberculosis.

The industrial and agricultural community would make possible a demonstration of ideal rural housing conditions. All cottages would be so designed as to permit porch sleeping for the tuberculous member and at least open bedroom sleeping for the rest of the family.

We are confronted with the question as to how the inception and growth of such a community is to be brought about. Should it be inaugurated by a governmental agency? In my opinion, no. The scheme as suggested here must be planned comprehensively at the very beginning and progress continuously under essentially the same management. Changing political administrations would probably mean changes in the governing board with consequent changes in the general policy, which would result ultimately in a patchwork town. This is not infrequently to be observed in the school systems of our cities. The experiment (let us frankly term it an experiment) must

be very flexible and it is certain that direct governmental control could not be elastic enough and responsive enough to the new conditions constantly arising which would confront the directors.

Visualization of the origin and growth of the community will make it apparent that the ordinary political organization of our American towns would tend to be destructive of the main objective. The ambitions and vagaries of village and city politicians could not be intrusted with internal control, at least until the community has been long enough in existence to have developed its own peculiar character and traditions.

It is suggested by a legal friend¹ that—

The keynote of the entire plan should be "social cooperation." Each of these terms is to be considered in its fullest sense. It is evident that unless there is such an altruistic cooperation between (1) the individuals who are to be benefited, and (2) the municipal and (3) social organization of the village or city, and (4) the employers of labor in the community the experiment is bound to result in failure. For instance, in the matter of employment by manufacturers and others who may be induced to use the services of the arrested cases it will not do to assume that such employers will be altruistic without a social compact which at the same time is a legal contract to use to the utmost possible limit the services of arrested cases. It is conceived that such a contract can be made in connection with the leasing of ground and construction of buildings, if employers of labor with this spirit of cooperation can be secured.

But it is also very clear that such general cooperation can not be secured through the use of the ordinary village or city form of government, because such a municipality can not legally enter into and enforce the necessary contractual rights. Involved in this problem, of course, is the absolutely essential matter of each employer being required by contract, with proper forfeiture clauses, to furnish constantly to the arrested cases such sanitary working conditions specified by the National Tuberculosis Association as most advantageous and least liable to bring on the recurrence of active infection.

The only way to have complete control of the situation until it is ascertained that the whole plan will not be defeated by the sale of lands and the organization of municipal control under the laws respecting the organization and conduct of municipal corporations of the State in which the village or city will be located, is to maintain the underlying fee-simple title in a semipublic organization which will take the burden and control upon itself. At the outset of the experiment, and probably for a long time, this involves a surrender to the idea of "social cooperation" of certain of the civic rights of each qualified voter in so far as municipal affairs are concerned, but it is submitted that one who is not willing to surrender such rights in order to aid the experiment need not ask for the benefits of the experiment. There will be no compulsion in respect to this matter.

It will be said that the idea of not parting with the title to the land is a repetition of the experiment made at the city of Pullman, Ill., near Chicago, but it is conceived that a very radical difference can be accomplished by working out a proper legal program; such a program in tentative form might be as follows:

(a) The control of the manufacturers and other employers of labor is of prime importance, and, therefore, the trustees who assumed the burden of the

¹ Judge John A. Street, Los Angeles, Calif.

experiment properly could lease lands selected by manufacturing plants for such long periods of time and at such low rentals as would induce manufacturers to come to the village and construct plants of the character which would be advantageous. Suitable renewal terms of such leases could be included in the lease and suitable clauses inserted to enable the trustees to purchase the plant at fair valuation in case of business failure or other conditions which would make it desirable to do so. All of this can be worked out on a practical basis beyond question. The proper class of construction and agreements respecting employment of arrested cases should be included in the same contract.

(b) It is conceived that similar leases to individuals who will build homes and stores, warehouses, etc., can be worked out so that the interest of the individual in the land, as far as a transfer to another person is concerned, will have practically the same value as if the fee-simple title was vested in the individual who builds.

(c) The question of building and maintaining schools, fire stations, a building to serve the same public purposes as a city hall, the maintenance of public parks, and other such matters as are commonly carried on by a city government is rather complex. It is suggested that a clause in each lease providing for an equitable annual assessment of rent against each parcel to cover the same purpose as taxation might be worked out and placed in each contract respecting land. It is also suggested that the cost of paving streets, installing sidewalks, curbing, and sewers, installing a complete lighting system for public and private lighting, and a gas plant for fuel could all be worked out by equitable apportionment against all leaseholders within the confines of the village, or the lighting, water, and gas systems could be capitalized at cost and each private user pay monthly bills as usual in ordinary municipalities.

The foregoing program necessarily requires expert advice and service, which it is conceived would be contributed without cost by leading experts in all departments in view of the fact that, as far as the trustees are concerned, the whole matter would not be organized for financial benefit but for service to the Nation.

The writer suggests that the necessary funds should be sought among the agencies that have concerned themselves with the needs of war and reconstruction. The funds appropriated would be placed in control of five trustees, men of large affairs and broad vision in business and the professions. If possible, let there be two business men, one medical expert in tuberculosis, a lawyer, and an educator.

The trustees shall purchase the land, secure and approve plans, contract for buildings and public works, and invest funds intrusted to them. They shall lay down a fundamental policy for the guidance of the executive staff, which would be organized somewhat as follows:

Managing director.

Director of industry and public works.

Director of department of public health.

Director of department of education and publicity.

Auditor (city clerk).

It will be seen that these five are somewhat comparable to the commissioners in the commission-manager form of government.

For the ordinary village community this organization would be looked upon in the present day as somewhat top-heavy and expensive. But for the development and administration of the type of village and the expenditure of the amount of money involved such a staff would be required. There would be immediate need also for other executive officers, such as the head farmer, resident physician of the sanatorium, etc., while sooner or later a director of recreation and city engineer would probably be needed.

The following is a list of properties and developments that may be required. Most of them are fundamental necessities. Some of them might be built through other means than appropriation by the sponsors of the project. Certain buildings, for example, would be built by the man or firm or corporation that would occupy them:

Land, 1,000 acres.	Pumping and power plant.
Thirty acres of immediate village improvements — house and storm sewers, water pipes, streets, sidewalks, electric lighting, planting, etc.	Fire house and equipment.
One hundred cottages for workers.	Laundry building and equipment.
Fifteen houses for town and shop administration officers.	Hotel (one wing of ultimate building).
Temporary office buildings during construction.	Hotel equipment.
Office equipment.	Garage.
Farm buildings and equipment.	Factory building.
Foundation stock, cattle, horses, hogs, sheep, poultry.	Printing establishment.
Store buildings.	Railroad sidings.
General hospital or sanatorium.	Auto trucks.
School building (four rooms).	Storage warehouse.
	Salaries, wages, legal and engineering fees, traveling expenses during development period, $7\frac{1}{2}$ per cent of estimated cost of development.
	Contingent fund, 10 per cent of total estimated cost of development.

In estimating the cost of such a project as has been outlined two main factors are involved:

First, town planning and development. The village would be planned to care for a population of 3,500 to 4,000. The immediate development is for approximately 220 workers, or a total population of 550 to 600. Costs have been based upon estimates given by men with special experience in particular phases of the problem—architects, consulting engineer, practical farmer, and dean of an agricultural college, etc. The initial development cost under present conditions is \$1,643,698. The year-to-year growth would depend upon the number of applicants for residence and the industries that could be secured to supply work for applicants.

It is estimated that the village could be made to take care of an increase of 100 per cent in population by the expenditure of from \$600,000 to \$800,000, thereby very materially reducing the investment per capita.

The second cost factor is maintenance expense. It is difficult to estimate the cost of administering a plant such as this. The figures I am able to gather lead me to believe that the requirements for such an organization as has been described, including salaries of executive staff, clerical assistance, school-teachers and supplies, public health nurse, counsel fees, cost of lighting and cleaning and oiling streets, garbage and ash collection, maintenance of fire department, water department, etc., would be nearly, if not quite, \$60,000. No estimates can be offered as to farm expenses, but it is reasonable to expect that within a year or two the farm would be at least self-supporting.

Rentals from houses, dormitories, stores, garage, and laundry building, fees for garbage and ash collection, charges for electric current, etc., will bring a return of not less than \$60,000 per annum. After deducting insurance premiums, county taxes, and repairs there would remain a substantial balance to help offset administrative expenses. As the town grew, the expenses would not increase proportionately and in a few years the corporation should be self-supporting, though return on the investment would be rather too much to hope for.

During the first months of residence most of the families and single persons would not be wholly self-supporting; some subsistence aid must be contributed, and the total maximum fund which it is estimated would be required during the first year is \$56,056. In arriving at this figure, as in determining development costs, we have sought to cover maximum needs. The method of investigation and the results appear in the appendix.

Can all this be accomplished? There should be few indeed in this year of 1919 to assert that it can not be done. Was it not Disraeli who said, "The impossible will be accomplished to-morrow"? There have always been learned (if not wise) men who have denied the truth of scientific discoveries or declared some proposed new forward step to be impossible of achievement. Scientists "proved" the impossibility of flying, but the Wright brothers flew. There is a large group of Prussians who boldly proclaimed that the Americans wouldn't fight, couldn't raise an army if they would fight, and couldn't get the army to France, even if they could raise one. They were obliged to witness the accomplishment of this "impossibility."

Certain insurance companies have found it profitable to accept substandard lives as insurance risks. The Committee for the Care of the Jewish Tuberculous and some industrial corporations have found it profitable to make use of substandard lives in industry. Is it not worth while to invest a few hundred dollars in each of one thousand or more substandard lives in developing a demonstration of a model town?

Thomas Adams says:¹

One of the chief causes of past indifference to bad community development has been the erroneous assumption that it consists of, or is best left to take place as, a "natural growth." Surely if anything is artificial it is the modern city or town. If anything needs the application of science and of sane, expert, and governmental direction to promote healthy and to prevent unhealthy forms of development, it is the industrial community of the present day.

We have not failed to build up wholesome industrial communities; we have not tried to build them. We have left their building to proceed not only without planning or direction, but with encouragement to land speculation and wasteful systems of land development and with protection to the claimants of artificial rights in property, even when the lives and health of the people have been injured as a result.

We do not want reform of our system of land and housing development; we want to begin to employ system. We do not want to endanger legitimate interests in property, but to establish them. We do not want to inaugurate socialistic extremes, but to forestall them. We do not want to lessen liberty, but to make it more widespread. And, recognizing that life is more important than property, that the aim of all production is life and not money, and that real national wealth is to be measured by the health of the people, we have either to control the right to property so that it shall not endanger the right to live in wholesome surroundings or face inevitable decay.

Dean George W. Kirchway, Federal director of the United States Employment Bureau for the State of New York, is quoted as saying (New York Evening Sun, Jan. 30, 1919):

We should embark upon more public works and improvements as soon as possible. Surely if we can spend billions upon billions in treasure for the taking of human lives in defense of our country in war time we can afford still better the expenditure of a portion of those vast sums in the undertakings of peace, which will benefit commerce and industry and, still better, leave a lasting heritage of health and happiness for our own citizenry and the generations yet to come.

All that is needed, in my opinion, is stated by Mr. Adams:

The things that are demanded of public leaders to-day are courage, rapid decision, and imagination, rather than the timid, indecisive, and dilatory methods of the legal mind that control our policies under normal conditions. We have to take risks whether we will or not. We have to cease raking up ashes of precedents. We have to think in terms of big ideas as well as big sums of money.

¹ House and Town Development in War Time. By Thomas Adams, town planning adviser, Canadian commission of construction.

APPENDIX I.

EXTRACTS FROM REPORTS, PERIODICALS, BOOKS, ETC., IN REFERENCE TO COLONIES FOR THE DISABLED.

[From Memorandum to Advisory Committee on Tuberculosis, Feb. 6, 1919: The establishment of productive vocational workshops for the rehabilitation of tuberculous.]

In 1913 the department of health of New York City undertook a study "to secure first-hand accurate knowledge in regard to patients within five years after discharge from sanatoria; to learn their present physical condition as compared with that on discharge; their living conditions; capacity for work and earnings; employment and its conditions; expectations as to health and life after discharge from sanatoria, etc., in the hope that such knowledge might perhaps result in a comprehensive plan for the more careful and comprehensive care of patients on discharge, to the end that whatever good had been accomplished by sanatorium treatment might not subsequently be lost through ignorance of what was further required."

With the permission and cooperation of the authorities in charge, the names and last addresses of patients discharged from the municipal sanatorium at Otisville, the State sanatorium at Ray Brook, and the Montefiore Home Country Sanatorium at Bedford Hills were obtained as basic records. Altogether the names of 978 patients were obtained in this way.

Among the significant findings concerning the working capacity of 273 patients discharged during the years 1905 to 1910, inclusive, it was learned that of 62 cases discharged as cured, but 44 were working; of 75 discharged as arrested, 53 were working; of 89 classified as improved, 50 were working; and of 47 unimproved, 18 were working.

"This shows very strikingly the tremendous handicap produced by tuberculosis, for we see that even of the patients discharged as 'cured,' the large proportion were unable to work. There is little doubt but that this is largely influenced by the patients' enforced return to the crowded (and for him) unhealthful city. Experience at Otisville has shown that kept in the country, under conditions similar to those of the sanatorium, a large proportion of the patients continue able to work."

It was found that over one-third were living under conditions which made continued improvement impossible. They were found in dark tenements, many of which were without any direct connection with the outer air; many rooms opened upon air shafts only; in 51 places of abode chances of improvement were further lessened by neglect and dirt; 12 per cent of the patients slept in the same bed with other members of the family.

It was found that the majority of sanatorium patients permanently learned during their residence the principles of health, and as far as their means permitted they tried to carry these principles into their daily lives at home and at work. Many of those who did not attributed their failure to do so to high rents, high cost of living, high cost of food, and bad factory conditions.

Undernourishment was apparent among many families coming within the scope of the investigation.

Further social control was recommended, to be obtained by increased sanatorium facilities, permitting a longer stay in the institution; by providing better adaptability to occupation and trade; by the trial of country colonies as a possible help in the solution of the problem of occupation and of increased length of care and treatment in order to build solidly for health; by a continued follow-up service, including instruction, friendly supervision, and periodic reexamination. * * *

A similar study of the present condition of 1,056 patients discharged from the Massachusetts State Sanatoria from May, 1912, to May, 1914, was made in December, 1916. A brief summary shows the following facts:

(1) Of 1,056 patients discharged from the Massachusetts State Sanatoria from May, 1912, to May, 1914, on admission 17 per cent were incipient, 36 per cent moderately advanced, and 46 per cent far advanced.

(2) On the first visit to these patients in their homes, in each case within three months after discharge from a sanatorium, 28 per cent were in good condition, 50 per cent living, 11 per cent dead, and 9 per cent had left the State or disappeared.

(3) At present (meaning by this, December, 1916) we find that 29 per cent are in good condition and at work, 11 per cent living, 45 per cent dead, and 13 per cent disappeared.

(4) Of the 312 patients now in good condition and at work, on their admission to a sanatorium, 35 per cent were incipient, 43 per cent moderately advanced, and 22 per cent far advanced.

(5) On discharge these 312 patients were classified as 58 per cent quiescent or arrested and 30 per cent as improved.

(6) Comparing those patients who stayed in a sanatorium under six months with those who stayed longer than this we find, as would be expected, that distinctly better results were obtained among those patients whose period of stay at the sanatoria was the longer.

The report contends that sanatoria are distinctly worth while, but some system whereby patients can be looked up, visited, and advised after their discharge is an essential part of sanatorium treatment. No suggestions relative to individual rehabilitation are offered.

"During the last five years the joint board of sanitary control of New York has had the supervision of the tuberculosis benefits in several locals of the International Ladies Garment Workers' Union, with a membership of about 20,000. We have had about 350 to 400 cases under our jurisdiction, and 215 of them have been placed in various boarding houses and sanatoria for a more or less lengthy sojourn. Our records show that of the 215 cases, 92, or nearly 43 per cent, have returned to their own industry, 37 joined other trades, while 8 left the State, 13 died, 6 are still under treatment, and the fate of 59 is unknown. This shows that by far the largest number of our posttuberculous workers have rejoined their industry or gone to other trades."

Dr. George M. Price, medical director, reports that the most difficult problem is what to do with those men or women who have been at sanatoria or other places and have had their disease arrested or cured. In a great many cases it was felt that these workers were not fit to undertake strenuous toil in their own industry and should have had either graduated work in their own trade or some lighter occupations in other trades. "It was also imperative," he continues, "to have a complete control and supervision over these workers, to have them examined periodically, to see their families, and, in general, to control their rehabilitation and their reentrance into industrial and social life." He advises the establishment of numerous "posttuberculous workshops" as one of the methods to be used in the solution of the problem, but points out

that there are a number of workers who are perhaps unfit to work inside of shops, and for whom it may be necessary to establish industrial farm colonies.

Distinctly better results are reported by Dr. D. R. Lyman in dealing with a very different class of patients than those found in New York City and Massachusetts.

At the close of the first 10 years of work at the Gaylord Farm Sanatorium, Wallingford, Conn., it was found that about 22 of their 1,112 cases had been lost track of. While \$400,477 had been expended on the institution (including 5 per cent interest on construction and equipment), the discharged patients had already earned \$1,339,000, or almost \$940,000 more than the entire expenditure in their behalf.

The records show that factory workers held their condition distinctly better, and the office workers far better than did outdoor workers.

Dr. Lyman ascribes the excellent economic and physical results chiefly to wages and environment. Of 344 men who had stated their earnings, only 13 were earning \$10 or less a week. Two-thirds were earning over \$15 a week. The average for the 344 was \$21.37. (The average weekly earnings of all patients, both men and women, at Otisville, New York City's sanatorium, was but \$9.81. An allowance of \$9 a week for women doing their own housework was included in this average.)

The following statement by Dr. Lyman regarding the prejudices of fellow workmen is interesting and significant:

"We asked each of our old patients this question: Has the fact that you have been at a sanatorium given rise to any unpleasant experiences with your neighbors or fellow employees? Six hundred and thirty-three answered this question; 500 stated that they had never had any trouble of the kind, and quite a few of the 43 who reported such experiences stated that they had been of a very trivial character; in other words, the facts as shown from these letters are quite different from the general conception of the situation." Unfortunately, a similar question relative to employers was not asked.

The report emphasizes the necessity of a more highly developed follow-up service to "procure more permanent results from the patient, and to aid in amassing data on housing, living, and industrial conditions, to control tuberculosis, the chief determining factors of the incidence of disease in that locality—the problem usually varying with the locality." * * *

[Department of Health, City of New York, Monograph Series No. 8, October, 1913, pp. 32, 34.]

The majority of sanatoria seem disinclined to keep patients longer than six months, the plea advanced by some being that in this length of time the patient will gain what the sanatorium can give him and also that a greater number can be admitted and so benefited. We believe it should strongly be urged that curable cases be kept for a longer period or until completely recovered. The establishment of industrial colonies mentioned below might obviate the necessity for this, but pending their establishment a longer period in the sanatorium for curable cases would seem advisable.

"Country colonies for tuberculous individuals, or for patients with their families, might well be tried as a possible help in the solution of the problem of occupation and of increased length and care and treatment in order to build solidly for health. Those restored could then return to normal life, while the incurable, according to their condition, could be transferred to hospitals or other colonies, where proper living conditions, medical and sanitary care, and suitable occupations would be provided for patient and family. There would seem to be opportunity in such colonies for valuable experimenta-

tion in flower and fruit and vegetable culture, truck farming, poultry, squab raising, etc., and even in some industries which could be conducted in the open air or in roofed-over places, practically open air."

[Fourth Annual Meeting, National Tuberculosis Association, Dr. Charles J. Hatfield.]

Early attention has been given by the directors of sanatoria to the possibility of developing convalescent farms to receive cases on discharge, and a few interesting experiments have been made. Of these the Saranac Lake Industrial Settlement is an example. The settlement was established in May, 1907, on a plot of ground on the outskirts of the village. The following is a partial quotation from the article in "Charities and the Commons," by Mr. W. E. D. Scott: "The purpose of the settlement was to try to find proper hygienic work and conditions under which convalescent consumptives might earn sufficient wages to enable them to prolong their stay in the neighborhood of the sanatorium until further progress in recovery was made certain. At the same time, it was hoped that the education in some healthful pursuit might make the future life of the individual an independent one. During the first six months of the settlement's existence 31 persons had either temporary or continuous employment. The wages paid ranged from 15 to 20 cents an hour. The industries tried were gardening, poultry, leather work, diet kitchen, sewing, mending, and an exchange for the sale of articles made by invalids in their homes." Unfortunately the experiment was discontinued after a trial of less than a year, because the late financial stringency made impossible the raising of the necessary funds for maintenance. Owing to the short period of operation, no definite conclusions could be reached. The element in the plan that provided for the education of indoor workers in outdoor occupations is especially noteworthy, and should be carefully considered in all experiments of the kind. * * *

Before leaving the consideration of farm colonies as a partial solution of the problem of giving employment to convalescent consumptives, it may be well to enumerate some of the obstacles to their success. In the first place, the capital invested is almost always very large in proportion to the number of ex-patients that can be benefited; thus the per capita cost of maintenance is greatly increased by the interest on the investment. Then the class of patients who can take up the work with profit to themselves and to the farm is relatively small. By far the greater number of the inmates in our charitable and semicharitable institutions are city and town bred. They have no ability or taste for farm work. A stay at the convalescent farm means a prolongation of separation from the families, unless, indeed, as at the Stony Wold Sanatorium, provision is made for families also; and if the families are provided for, still fewer patients can be accommodated. * * *

Farm colonies for consumptive convalescents should be thoroughly tested. The plan of educating indoor workers in outdoor occupations should be kept in mind. When possible the families of ex-patients should be looked after, and should be encouraged to assume the care of the sick member.

[Eighth Annual Meeting, National Tuberculosis Association, Dr. S. Adolphus Knopf, p. 167.]

Suitable work some time prior to and after the arrest or cure of the disease is, to my mind, of incalculable value to the patient. By suitable work I mean to suit the physique and the mind of the patient; work which makes him happy and contented—in other words, a pleasant occupation.

Such occupation therapy during the convalescent stage, under proper supervision, will help to solve the problem of what to do with the countless number of patients who can not remain long enough in institutions. I would, there-

fore, very strongly advocate a movement creating what I would wish to call "intermediate stations." Here the recovered tuberculous patient should, if at all possible, find work with which he is familiar, with which he has before earned his living, and with which he will have to earn his living thereafter. Thus, for example, if a man has been a tailor, let him do some tailoring; if he has been a shoemaker, let him do shoemaking; if he has been a book-binder, let him do bookbinding; and so on. It goes without saying that these intermediate stations should be models of sanitation and that all work which can be so done should be done outdoors. Such intermediate stations should be institutions supported by the State or municipalities, for it is the commonwealth which will be particularly benefited by a greatly reduced number of relapses. Thus a true financial gain will in the end accrue to the commonwealth from the establishment of such intermediate health or sanitary work stations.

[Maj. P. Horton-Smith Hartley, C. V. O., M. D., F. R. C. P., honorary adviser on tuberculosis to the ministry of pensions and to the committee on institutional treatment appointed by the minister of pensions.]

Writing on "Tuberculosis in its relation to the war" he says:

When the sanatorium movement was first initiated it was hoped that the arrest or improvement in the disease thus obtained in many cases would be permanent. It was soon found, however, that from one cause or another, and after a longer or shorter interval, a large proportion of cases broke down again. A movement, initiated by Sir Robert Philip, of Edinburgh, has consequently sprung up to start what are known as "farm colonies," to which the patient may be drafted after leaving the sanatorium, and where he may stay for a year, it being hoped that by prolonged treatment of this kind the arrest of his disease may be consolidated, and a much larger proportion of cases remain well after discharge. During his stay training would be combined with treatment, and the patient would learn market gardening, agricultural work, pig-keeping, beekeeping, poultry farming, and to some degree dairy work, and possibly forestry, so that on leaving he would be in a position to take up a small holding or large allotment, or possibly work a small farm on cooperative principles, with other patients whose friendship he has made while in the institution. In other cases the patient would return to his former occupation, provided it can be carried on under good environment. No doubt, too, as such colonies develop training in certain trades, which can afterwards be carried on under healthy conditions, will be added, and such industrial training may become the most important element in the scheme, the colony thus becoming an "open-air training colony" rather than a simple "farm colony."

(Recalled to Life, No. 2, September, 1917.)

[British Medical Journal, London, 1918, I, Feb. 2.]

This journal refers to farm colonies in the treatment of tuberculosis as follows:

Experience at the Royal Victoria Hospital, Edinburgh, has shown that in a considerable number of cases complete arrest of tuberculosis could not be attained within the ordinary time limit of sanatorium residence. It was found that within four or five years some 50 per cent of patients apparently cured had relapsed. The average duration of sanatorium treatment was six months. If, under the present insurance act, the treatment is reduced to three months

the results will be much worse. Even if the duration of sanatorium treatment is not reduced it would be desirable in from 20 to 25 per cent of the cases to continue the treatment in a farm colony. For a certain number of patients the only hopeful outlook after cure is to continue an outdoor life. The work of the Royal Victoria Hospital Farm Colony, established in 1910, has been very satisfactory in spite of the disturbances of the war. Almost all the patients were kept in residence for 12 months and discharged with the disease arrested and with a first-rate working capacity; and these were all cases in which sanatorium treatment, even exceeding six months, failed to secure decisive results. They were typical cases, which would have gone to swell the roll of sanatorium failures.

[Modern Hospital, September, 1918: Red Triangle Tuberculosis Farm Colony.]

The National Council of Young Men's Christian Associations has purchased 30 acres of land at Kinson, in Dorset, where it has established a farm colony for tuberculous soldiers. Only patients in the early stages of the disease are accepted. The men live in wooden chalets, distributed over a sheltered and wooded portion of the estate. Each chalet is divided into two sections, each containing two beds. The central building contains dining and recreation rooms, kitchen, and offices. The work is graduated. It consists of cultivating vegetables and fruits, keeping bees, rearing of poultry and pigs, etc. More extensive farming operations, however, will be undertaken later. The colonists receive 1 shilling each working day. The aim of the institution is not only to cure the patients but to give them a training which will enable them practically to begin life again.

[Extract from British Journal of Tuberculosis, by Andrew Trimble.]

The "old methods," tried and found wanting before the war, are being strained to the utmost, and the death rate steadily increases. Three months' or even six months' treatment at a sanatorium, followed by a return to the conditions under which the disease was contracted, has been shown to be worse than useless. Has not the time arrived to take stock of the position, find out where our present system fails, and, in the light of experience, try to make good its defects? The principles of sanatorium treatment are sound enough; it is the application of these principles in the case of the workingman that is at fault. Our sanatoria are filled, for the most part, with cases more suitable for hospital than for sanatorium treatment; but they are religiously put through the regulation three months' treatment and then as religiously discharged; for the whole thing has become a ritual. What becomes of these cases? They go to swell the ranks of the unemployed and unemployable, and thus become a burden to the community. They constitute by far the greatest number of cases of tuberculosis, fill the out-patient departments of our hospitals and dispensaries, and are the means of spreading the disease and gathering in ever-new victims. Is this state of affairs to be allowed to remain unchanged? Granted that better means of early diagnosis will improve the situation, with the medical profession as now constituted, it will take at least a generation before any new means will be generally adopted. We must, however, act *now*, and, at any rate in the case of our discharged soldiers and sailors, see that the old methods are not applied. Fortunately, the pensions ministry is becoming aware of the magnitude of the danger, and public opinion is gradually hardening to the view that there must be less tinkering with the question and a more thorough method of tackling it adopted. Equality of *opportunity* must be given to *all* cases of tuberculosis

discharged from the services. Prolonged treatment must be available, first at a sanatorium colony and then at an industrial colony. Afterwards the cases must be followed up by a rational system of after care; nothing short of this should be tolerated. A community, which would become largely self-supporting in time, should be started—a colony such as that in course of construction at Papworth, in Cambridgeshire—where ex-service men suffering from tuberculosis may reside, their difficulties appreciated and overcome, their lives made happy by the thought that they are not wandering about in a hopeless fashion, unemployed and, above all, shunned by their fellows, but are engaged in remunerative work, for however small a number of hours daily, assisted by the State, and no longer constituting a danger to the general community. Nothing short of such a comprehensive scheme should find favor with the mass of medical and lay opinion, other than that already prejudiced by preconceived opinions. Let us bear in mind that it is impossible to turn a mechanic into a farm laborer, and that a light open-air job is not the same thing as farmwork, and that in any case light jobs usually mean light wages at the end of the week. Rather let us help to demonstrate that many trades, when carried on under ideal conditions, can be undertaken by consumptives without any detriment to their health. We may thus help to bring about the time when all cases of tuberculosis will be treated at a colony, and not be allowed to drift back to surroundings in which they can infect others. The day of a short stay at a sanatorium and a quick return to the workaday world is, we hope, fast receding, and this will come about all the more quickly if we face the facts and refrain from hiding our heads in the sands of complacency. It must be recognized that a consumptive workingman with the disease arrested is only capable of doing a certain percentage of the work of that accomplished by a healthy man; this must be accepted as a fundamental truth. Subsidize the man's labor and let him live under ideal conditions. Let the pensions now given to tuberculous ex-soldiers be used for this purpose—for the man's own use—while he is shielded from the fierce competition to which he must otherwise succumb. When treatment and prevention go hand in hand, the "arrest" of tuberculosis will be in sight.

[War Pensions Gazette, January, 1918: Advantages of the colony treatment over the sanatorium.]

It is a matter of general knowledge that while many consumptives of the better classes are restored permanently to health and capacity for work as the result of treatment and education in a sanatorium, yet, on the other hand, the statistics of sanatoria for the working classes give a discouraging picture of what institutional treatment can effect for them. But the factors which make for failure are equally well appreciated; these are too short a duration of treatment in the sanatorium, discharge in a State of incomplete cure, and return to unfavorable conditions, such as unhealthy occupation, uncertain or inadequate wage, or unsatisfactory housing. To teach the consumptive of the working classes an occupation which promises him his normal standard of livelihood, and a healthy environment, would be to solve, at any rate to a large extent, the difficult problem which he presents. Alternatively, to give him some 12 months' treatment instead of two or three, and meanwhile to make an adequate provision for his dependents, would, apart from any reeducation, improve his outlook materially. He would return to his home farther advanced on the road to recovery, so that with some aftercare, such as shortening the hours of work, and for a time at least some financial assistance, he might in many instances return to his ordinary occupation with no little success.

Agricultural work of some kind is most commonly proposed—general farming, market gardening, fruit growing, poultry rearing, etc. Latterly the success in reeducating the disabled soldier has suggested the teaching of some of the trades which can be followed without detriment to health, such as carpentry, simple mechanics, various kinds of handicrafts.

[British Journal of Tuberculosis: A symposium.]

The British Journal of Tuberculosis has endeavored during the strenuous years of war to concentrate attention on practical aspects of the conflict against tuberculosis. The fight for the prevention and arrest of tuberculosis calls for a systematically arranged, scientifically conducted, continuously applied, complete service. In this campaign highly organized forces and effectively coordinated schemes for attack are essential if any real success is to be attained. During recent days many have advocated the establishment of colonies for the tuberculous. The tuberculosis colony undoubtedly deserves a place in any complete system for dealing with tuberculous and tuberculously disposed cases. But wide differences of opinion exist regarding the nature, organization, administration, scope, limitations, and general effectiveness of a tuberculosis colony. There are but few experiments sufficiently complete to afford grounds for the formation of governing principles. We have therefore gathered a number of expressions of opinion from experts who, as serious students of the problem or from actual experience and experiment, are in a position to present data and afford advice which we believe will be invaluable in directing the way toward rational conclusions. (Editor.)

Until some one has the courage, whether by means of a colony or otherwise, to tackle this mass of infection—that is, the mass of middle cases, of men who can only do 30 to 50 per cent of the work of a normal man—it is not much good talking about the eradication of tuberculosis. The colony, therefore, should really be a community, with a central institution for advanced patients where they may be nursed and tended to the last. A separate part of the estate should be marked off where varied and definite trades should be arranged, so that each patient may be engaged in an occupation which is as nearly like his old trade as possible; and these patients should be housed in specially constructed open-air shelters. Between these two extremes there should be a connecting link, the training settlement for the mass of middle cases, which may in the one event be passed into the industrial part of the community, or in the other be cared for in the central institution. (From Sir Clifford Allbutt and P. C. Varrier-Jones.)

The conception of the farm colony for the treatment of tuberculosis offers, in my view, more hope of success than is likely to be attained by sanatorium treatment. I have always held the opinion, which is strengthened by experience, that the results attained by the latter method are in no sense commensurate with the cost entailed, and I do feel assured that in time it will be generally recognized that large sums laid out on preventive measures, including prominently better housing conditions, will be generally adopted in preference to a continuation of our present methods.

For the greater part of the year a very small number of workers is sufficient for the agricultural necessities. Experience in connection with Polton Farm Colony indicates that besides the ordinary branches of agriculture, with, in

addition, the industry of pig breeding on a large scale, there is the necessity for some other productive open-air occupation which would keep the persons under treatment employed throughout the whole year. Useful industries, therefore, connected with joinery, cabinetmaking, fretwork, bootmaking, and such like, seem essential additions to the conception of a farm colony as such. (From A. Maxwell Williamson.)

One of the reasons for the designation "farm colony" was to enable the colonist to obtain employment without being labeled an invalid, thereby tending to reduce his market value. But while farming operations form a distinctive feature, other industries are not excluded, such as forestry, with its various ramifications, market gardening, industrial workshops, etc. Nor is any colony complete without an open-air school for children. Hairmyres Colony embraces the above features and holds in it all the elements of success. It is capable of indefinite expansion. Patients that no longer require the services of a nursing staff are transferred to the colony, thus relieving pressure on the sanatorium. The scheme is a practical one, based on sound economic and educative lines. Its object is to so treat and train a patient for a prolonged period under medical supervision, and thus enable him to earn a livelihood under suitable conditions, the risk of relapse being reduced to the minimum. It conserves and maintains working capacity. The great variety of occupations created by the activities of a well-organized colony arouse and sustain interest, thereby reflecting on the physical and mental well-being of the colonist. That restless dissatisfaction, frequently a disquieting feature in sanatoriums, is seldom met with.

There are three strong arguments against the colony system which can be obliterated by legislation, viz, (1) inability to commandeer for treatment the very early cases of tuberculosis, (2) to retain those cases without interruption till a permanent arrestment, or otherwise, is effected, (3) the vexed question of dealing with dependents. None of these arguments, however, detract from the efficiency of the scheme for the attainment of the object for which it was created. (A. H. Macpherson.)

Such colonies must be founded on a much broader basis than the "farm colony" of the past, which has been of limited utility where the majority of patients was drawn from a rural population, and has been even less useful for cases coming from an urban district. (Godfrey Brookes Dixon.)

Sanatorium treatment must in many cases be followed by proper aftercare, and this could be best provided in a colony. There are, however, many intrinsic and administrative obstacles. It is notoriously difficult to persuade the town dweller, and especially when he is a skilled artisan accustomed to a high rate of wages, to adopt a country life and an outdoor occupation even for a year or two. Many of the colonists would wish to leave, without regard to medical advice, as soon as they thought they had acquired sufficient knowledge to make their services of any real commercial value. Adequate provision and accommodation would have to be made for the dependents of married patients, which would mean a considerable financial outlay, for which voluntary enterprise and probably State action is unprepared. The patients could be maintained at less cost in a colony than in a sanatorium, but it is extremely doubtful if colonies could be made self-supporting. Experiments on a small scale do not provide the difficulties which will present themselves if large numbers are to be colonized. (W. G. Kinton.)

The colony should cater for picked cases discharged from sanatoria. It is unlikely that one institution will be able to provide a sufficient number of such cases, and therefore the colony should represent a large geographical area. (Niven Robertson.)

I feel convinced that a colony scheme, properly carried out, will prove the best means for the speedy and complete eradication of tuberculosis. To be successful, however, it must be made thoroughly attractive to patients, and must offer them a happier and fuller life, as well as better chances of recovery or amelioration, than they can get, as a rule, in the general community. The ideal colony would consist of a large village community, where patients of both sexes, of all classes and ages, and at all stages of the disease, would be suitably provided for. The larger the colony the better, as more variety of occupation and interest could be provided to suit individual tastes. The normal residential unit should be the patient's home, rather than the tuberculosis institution; each "home" accommodating patients of different ages and of both sexes under the charge of responsible house mother and father. Several "families" might possess a common kitchen, dining room, etc. I believe this plan would prove much more satisfactory than attempting to segregate the sexes. For acute or advanced cases a nursing home or suitable hospital accommodation would be necessary. Special pains should be taken to provide appropriate and congenial occupations for the colonist patients. Hours of work should be regulated according to the capacity of the individual and all labor paid for in proportion to its market value. Ample provision should be made for the education of children, for hygienic instruction, for the training of patients in arts and crafts, and in all that pertains to good citizenship. There must also be proper provision for healthy amusements and religious worship. Self-government should be introduced as far as possible in conjunction with expert advice and direction, and the residents must be encouraged in every way to take an interest and pride in the welfare and prosperity of their colony. The general layout of the village should be arranged on garden city lines, and all buildings, residential and other, must be designed and furnished with a view primarily to health, thorough ventilation, and ease in cleansing. Were a sufficient number of such tuberculosis colonies established it would become possible, I believe, without much hardship, to segregate all infectious cases out of the general community, and thus put a stop to the spread of tuberculous disease. (J. E. Esslement.)

[War Pensions Gazette, March, 1919, p. 279.]

The West Riding of Yorkshire County Council have decided to carry out a large scheme of land settlement for ex-service men. The sum of £100,000 has been voted to finance it, and a salary of £1,000 is offered for a land agent capable of supervising the undertaking. It was stated that the board of agriculture had promised their active support, and that, though there was still much uncertainty as to the numbers to be provided for, yet a census had been taken of the army in France, which showed that 4 per cent of the men serving there desired to settle on the land.

[Gertrude R. Stein, employment secretary, Red Cross Institute for Crippled and Disabled Men, who has recently returned from an extensive investigation in allied countries.]

The more I think of this problem the more I believe that a garden city such as Letchworth Village is one of the few constructive solutions of the

tuberculosis problem. The difficulty, of course, is in congregating so many tuberculous families together that the well members of the family might resent the fact that the town is known as being just for tuberculous people. Towns like Denver and Colorado Springs are largely inhabited by tuberculous people, however, and it does not seem to have injured their progress.

In traveling abroad I visited a great many of the garden suburbs, but none of them impressed me as constructive and big as did Letchworth Village. Those living in the garden suburbs must usually travel long distances in getting to their work place, while in Letchworth Village the men all live right near their factory. In fact, this is one of the special features of the place. In most cases, I should say, the workmen only have a five-minutes' walk to their factory.

You see, this town had the tremendous advantage of being planned before it was built, and not just having little parts tacked on, as most of our cities have grown up. By this general planning it has meant that there will always be much open space around the town—in this case, forests. The houses are built distant enough from one another that all the rooms are light and airy. The rents, as I remember, were particularly low. This is, of course, due to the system, to the communal plan on which the company is being run. There is no speculation connected with this scheme, and all the profits that there are go back into improving the property.

The project has struck me as one of the most ideal things that I have ever seen. The buildings are beautiful, well arranged, and the people look happy and satisfied.

It would be wonderful if something of this kind could be started for the tuberculous in this country.

[John Galsworthy in Reveille.]

A third plan, which might have to be adopted: A system of Government workshops for townsmen, and of rural colonies for countrymen, employing only the disabled, at standard wages, and refusing no disabled man who at any time presented himself. Not disciplinary institutions, in any way, just ordinary industries—the men living or lodging with their families, outside, in the usual way. Such workshops and colonies would, of course, need formation and support on the most elastic scale, suited to good times and bad. They might well in some years be almost empty, in others full to overflowing. But if they existed we should all know that the right to work and a decent life has been permanently secured to every disabled man. They would probably be self-supporting, and would automatically form training schools for men who wished to pass on to work again in open competition, as the Lord Roberts workshops do now on a small scale.

[British Medical Journal, Dec. 21, 1918.]

A far larger undertaking, which sooner or later will have to be faced, lies before the county and borough councils. It is on all hands agreed that the establishment of farm and industrial colonies, where sufferers in every stage of the disease can be properly housed and profitably employed, is urgently needed. The idea is no longer the utopian dream that some gloomy critics have ridiculed. It has been translated into practical being, and one of the most successful of such colonies is to be seen at Papworth Hall, near Cambridge.

[Letter from J. Foster Searles, district vocational officer of the Federal Board.]

Ever since we met at the district vocational officers' conference in Washington, the middle of December, I have been thinking over the question of the right kind of colony for men convalescent from tuberculosis. We have a great many soldiers suffering from tuberculosis who are treated well in the sanatoria within our district, but who, having their disease arrested, are discharged long before they acquire any real physical strength or endurance. A discouragingly large percentage of these men are breaking down later on because of the absolute necessity of their doing too heavy work to earn a living.

To my mind what is needed is as follows: A large acreage; buildings in first-class condition, especially small cottages where men could, if necessary, bring their families; the entire colony to be under the direction of a business manager and competent medical officer, with a staff including an agricultural expert and such other experts as would be necessary to carry out competent and practical instruction along all the lines of work offered.

As to the lines of work, inasmuch as most of our tuberculosis cases are from the country or small towns, farming would come first, especially emphasizing the lighter forms of farming, such as dairying, poultry raising, small fruits, animal husbandry, farm accounting, and simple bookkeeping. There should also be well-equipped shops to teach mechanical trades, such as blacksmithing, auto repairing, farm-tractor operating and repairing, light machine-shop work, carpentry, cabinetmaking, wood carving, and as great a variety of the wage-earning hand crafts as could be developed. There should also be a good commercial course, including typewriting, bookkeeping, business management, business law, etc.

I recognize that this contemplates a large plant and a considerable staff, but it seems to me that men going there after their tuberculosis is arrested could not only regain their health in a substantial manner but at the same time learn useful trades and occupations, so that when they have completed their year or more of attendance they would be fitted to carry on without the liability of breaking down.

While such a colony would be expensive at first, the work accomplished would bring in a steadily increasing revenue, and men going to the colony should receive, aside from their treatment and the care and oversight given them, a small wage and a percentage of profit sharing on the work they do. This would bring in a fair amount if not an entirely sufficient revenue to carry on the plant and at the same time put these men on an apparently self-supporting basis and eliminate the charity phase of the moral question. We find many of our soldiers resenting the charity idea and working to get on their own again, and it would seem to me that this might be accomplished in some such way as above.

[Noel Dean Bardswell, M. V. O., M. D., Edin., F. R. C. P., London, late medical superintendent King Edward VII Sanatorium, medical adviser to insurance committee for county of London.]

Broadly speaking, there are two alternative policies relative to the treatment of the consumptive worker; either the patient must be kept at an institution until he is cured and can return with reasonable confidence to his former life and employment—this may be a matter of years—or, following a shorter course of sanatorium treatment, we must so change his environment as to render his conditions at home and at work such that recovery from tuberculosis is possible. It is the realization of these facts that has led to the

evolution of after-care organizations and, more recently, to the conception of colonies for consumptives.

The two types of consumptive colony.—The term "colony" is used to describe two types of institutions. These two colony schemes, though having much in common, present certain distinctive features which sharply differentiate the one from the other.

Scheme 1, associated with the name of Sir Robert Phillip, provides for an institution for the exclusive reception of the early and most curable cases, with a view to giving them prolonged treatment and a training in some agricultural employment. Though linked up with the sanatorium from which the colonists are drawn and with the other elements of a comprehensive anti-tuberculosis administration, it is designed as a separate institution. Equipped upon simpler lines than sanatorium, it is less costly to administer. Moreover, the patients, by performing useful work in the institution and in the grounds, gardens, and farm, are able to reduce somewhat the cost of their maintenance. To give the favorable case some 12 or 18 months' institutional treatment in place of the more usual period of three to four months should, apart from any question of reeducation, appreciably improve his outlook. The patient returns home, having made substantial progress on the road to recovery. With some aftercare he may be expected, in many instances, to attempt successfully a return to his ordinary life and employment.

Scheme 2 is more comprehensive in scope, in that it makes provision for all kinds of cases, irrespective of the extent and character of their disease. Thus it comprises, under the same administration, a sanatorium, a colony as in Scheme 1 for vocational training, and a home for advanced cases. The opportunity for occupation and vocational training, however, is not limited to the most favorable cases, but is offered to every patient who desires it and who has a prospect of some degree of restoration of working capacity. Further, recognizing that many patients can never be so restored to health as to be able to hold their own in the open labor market, the colony seeks to establish suitable trades and industries which, by offering remunerative employment under favorable conditions, will not only give scope for reeducation, but encourage the permanent settlement in the neighborhood of the colony of ex-patients and their families, thus forming the nucleus of a community living under the healthy conditions of a garden city. It is hoped that by this means the voluntary segregation of the consumptive will gradually be achieved.

A description of one of these colonies will be of interest.

The Papworth Colony, directed by Dr. Varrier-Jones, is a development of the earlier enterprise carried out at Bourn. Its characteristic features have already been referred to.

The colony comprises a large mansion, with grounds of 16 acres, which include a large walled-in kitchen, garden, and orchard, and 100 acres (now greatly increased) of agricultural land. The mansion is devoted to administrative purposes and to the accommodation of advanced cases. Accommodation for the more favorable cases is furnished by shelters built in the grounds. To provide means of useful employment for the patients, a carpenter shop, forge, and mechanical workshops are in course of construction. Already the carpenter's department is well developed, and is in a position to execute orders for open-air shelters and other portable wooden structures. This department is managed by an ex-patient, a skilled carpenter, and is run on business lines; the actual work is carried out entirely by the patients. The making of parts for the Cambridge Scientific Instrument Co. is another enterprise which has passed the experi-

mental stage. Opportunity for the employment of some women patients is supplied by a neighboring fruit and jam-making industry. The gardens and land offer an agricultural training to those who elect for it. With a view to the permanent settlement of ex-patients the colony has acquired some model cottages formerly occupied by employees on the estate; the erection of further cottages will be the work of the patients. Already applications by former patients for cottages exceed the available accommodation. (Lancet, Aug. 3, 1918.)

[Literary Digest: Description of Enham Place Colony for disabled men.]

Vocational training for disabled men in village centers is taken up by the Red Cross of England, following the example of France and Italy. In March or April the first of these centers will open at Enham Place, near Andover. A grant of \$50,000 has been made by the British Red Cross Society for the building and equipment of the medical block. Other agencies contributing help are the Ministry of Pensions and the Board of Agriculture. A center where 1,000 men can be provided for will involve an expenditure of \$500,000 says the London Weekly Times, but existing buildings are to be found at Enham where 150 men can be started on the way to restoration. The picture is one to consider for our own disabled soldiers:

"Enham Place is a large, handsome house in the middle of some of the most beautiful scenery in Hampshire. The whole estate covers 1,027 acres, and contains four farms, three big houses, two smaller ones, a village hall, post office, smithy, and over 20 cottages. The village centers council chose it with a view not only to what may be called its practical advantages, but to its suitability for men with shattered nerves needing rest and fresh air.

"The future occupants of the center will be those who are suffering from the effects of shell shock, or are crippled by wounds, or have lost a limb, or are recovering from illness, or have been recommended a country life. It is not proposed to receive men who can not reasonably be expected to recover any capacity for work. Some of the new villagers will be instructed in various branches of farming and gardening, dairy work, and poultry keeping. Others will be taught carpentry, furniture and boot making, tailoring, motor repairing, building, painting, and plumbing. The intention of the council is to establish many small workshops and classes rather than a few large ones, the aim being to bring out each man's individuality and provide opportunity for his tastes. The community hopes to supply most of its own wants and to lay out its own land. The characteristics of the "institution" are to be avoided. The men themselves will have a voice in the management of the center, and the real communal idea will be fostered.

"It will be gathered that the essence of the scheme is to combine curative treatment with vocational training. A man will be put on the road to recovery while he is 'finding his feet' industrially. Nor is it intended that during this period the patient and pupil should be segregated from his wife and family, if he possesses them. As soon as funds allow, more cottages will be built, so that the family man will be able to get a home and a piece of land on fair terms during his progress to recovery, which, in many cases, may take a long time.

"So far as his disability will allow, the disabled man must be brought to his full potential value as a unit of the Nation." Such is the ideal expressed by the village centers council.

PLAN FOR INDUSTRIAL VILLAGES AS OUTLINED BY THOMAS H. MAWSON IN "AN
IMPERIAL OBLIGATION."

The vision: The disabled soldier placed among attractive surroundings, drafted into congenial and profitable employment, and contributing to the national welfare as a useful citizen of his community.

Characteristics of the village:

Artistic and practical.

Unity of purpose.

Paramount industry, but diversity of occupations.

Abundant housing facilities and working facilities.

Cottages rather than community blocks or flats.

Churches and good schools.

The inhabitants:

Any who are below the normal in physical power—not totally disabled.

Some able-bodied persons must be admitted for those tasks which require the full measure of physical and mental strength.

Widows and children of soldiers.

The occupations:

Varied to suit the mental capacity and different degrees of disability of those employed.

Individualized handicrafts to a limited extent only.

Centralized industry of some article of commerce designed on sound artistic and constructive principles.

Factory processes which may be carried on in the workers' homes.

Factory work on the usual scale.

Small workshops, where processes are subdivided among a few people.

Agriculture on a small scale, as market gardens, nurseries, dairies, poultry raising.

Buying and selling needed materials, collecting and distributing the products.

Local agencies for large mercantile and insurance companies, railways, Government departments, as post office, etc.

(This last would afford opportunity for the blind as telephone operators and typists.)

Requirements of the selected industry.

Suitable to the locality.

Suitable to the disabilities of the men.

A great variety of branches and possibilities of application.

Opportunities for piecework at home as well as factory processes.

The size of the village:

Many small villages have an advantage over a few large ones.

About 3,000 people is suggested as a proper number.

Location of the village:

Not too far distant from former homes of the disabled.

Easily accessible for obtaining raw materials, and with easy means of egress for the finished articles.

With good railroad connections, good main roads.

Control of the villages:

Through a central committee with the assistance of district and local committees for each village. This local committee would act as a public utility committee, with a paid executive.

Residence in the villages would be purely voluntary.

Control of the villages—Continued.

Renting cottages, establishing shops or some business, taking up small holdings or market gardens, must be done on exactly the same terms as in any other town.

Villagers would meet their expenses in the same way as in other towns, the difference being that necessities, power, water, etc., would be supplied to them on specially advantageous terms.

Care must be taken of the property. Rents must be paid.

Types of the villages:

1. Suburban colonies—near industrial centers.
2. An old village with an established industry reconstructed.
3. A new village, chosen and planned on the best lines for its special adaptability to the purposes.

Things to avoid in planning the village:

Anything artificial or superficial.

A village of institutions half-hospital and half-barracks.

Anything which would tend to the pauperization or exploitation of the villagers.

How to finance the project:

1. Financing the original construction:

(a) Government aid.

(b) Supplementary aid from philanthropic sources.

(c) Donations for memorials in various forms, as a block of flats, a single cottage, a street, a park, churches, clubs, etc.

2. Organizing the industries on a self-supporting basis:

(a) Government loans.

(b) Semiphilanthropic loans.

(c) Small investments from the workmen themselves.

3. The maintenance when established:

Marketing the products.

Attracting outside visitors, who will buy the small articles of the home industries.

Will it pay?—It will restore the mar. power of the nation among those in whom it has been sadly reduced.

It will make a small, but by no means negligible contribution to the solution of the financial problems of the after care of the disabled soldier.

It will help toward the payment of that "debt of honor," which we owe to those who have fought our battles for us.

APPENDIX II.

A Discussion of the Tuberculosis Community by Tuberculosis Specialists and Tuberculous Patients.

[Report by Dr. F. H. Heise of the discussion on the paper "Suggesting a combined industrial and agricultural community for the tuberculous."]

The subject of a tuberculosis community was presented by Dr. H. A. Pattison, at the Saranac Lake Club, on Thursday night, April 15, 1919, in the presence of approximately 25 physicians of Saranac Lake and the Trudeau Sanatorium, and a few other interested persons. After Dr. Pattison's reading of his excellent exposition of the subject, the matter was discussed quite fully and freely, the following comments and questions being most frequently expressed:

Dr. Lawrason Brown and Dr. C. C. Trembley: Immediately after the reading of the paper, Drs. Brown and Trembley discussed the fact that Saranac Lake itself could be considered as a tuberculosis community, inasmuch as most of the business in Saranac Lake is conducted by people who have had tuberculosis and who have remained in Saranac Lake to cater to the wants of other patients who make Saranac Lake their temporary home. It was also suggested by Dr. Brown that the community idea would be very good, inasmuch as it has been the experience in Canada and is beginning to be found in the United States that the Government is unable to hold its tuberculous soldiers in sanatoria, especially if vocational employment was not given the men, and that the community idea would in all probability help to solve the problem of the after care of the soldier who has contracted tuberculosis but who wishes to take off his uniform and enter civil life again, affording him excellent means of taking care of himself and at the same time providing certain funds for his maintenance.

Mr. Feustman (of Scopes & Feustman, architects in Saranac Lake), expressed the thought that the community idea appealed to him as being very ideal, and that the community could be made very beautiful. He saw no reason why a community established along such lines (as advanced by Dr. Pattison) could not be made equally as successful as other industrial communities.

Dr. Trembley later expressed the belief that, if life was made livable and there were several varieties of occupation in the community, and provided there was a sufficient reserve fund to make up the deficiencies in earning power of those able to work only part time so that they could live comfortably, the plan ought to work out quite well. Dr. Trembley divided the patients in Saranac Lake into three types: (1) Those who eventually will be able to go back and resume work of a certain amount and character, (2) those who have a hope of returning after a period of time more or less indefinite, and (3) those who have no hope of being able to work again.

Mr. R. M. Obenchain, executive secretary of the Saranac Lake Society for the Control of Tuberculosis, and bureau of information, etc., stated that in his belief, inasmuch as the care of the health of the patients of the community would be an essential factor, patients would therefore be attracted by it and would be anxious to go there if able to work.

Dr. Brown expressed the belief that Saranac Lake would not be a very choice location for a tuberculosis colony, because it is not situated on the main line of any railroad and is not within very short hauling distance of areas of production of good agricultural crops and food. He thought the colony should be established on a main line, in a region where the climatic conditions are favorable enough to grow a variety of crops. He thought Saranac Lake and similar places could be used as preparatory places for patients to qualify for entrance later to the community.

Dr. R. C. Patterson (of Saranac Lake) advanced two theoretical objections, as he termed them; (1) that he questioned whether or not the marketing of articles made by the tuberculous would be an easy matter, (2) he mentioned the possible objection of the labor unions to any such plan.

Dr. Brown incidentally mentioned that, at base hospital No. 16, New Haven, Conn., where there is vocational training for the tuberculous soldiers, enough goods can not be produced to meet the public demand.

Dr. H. A. Bray (resident physician, Ray Brook Sanatorium) advanced his opinion that the sanatoria themselves would offer a good field for marketing the products of the community industry or industries, such as books, printing, pottery, dishes, sputum cups, and things of like nature.

Dr. R. C. Patterson advanced his belief that the various beneficial unions, labor unions, and other beneficial societies, would be relieved of a great deal of the burden of benefit payments, insurances, etc., on account of the patient's being able to take up remunerative employment at a time when he would not be able to return to his home and do a full day's work.

Mr. Obenchain then questioned what could be done with the arrested case who came to the colony for employment and later became active, especially if he were not a resident of the State in which the colony was located.

Dr. Brown asked how cases would be selected for eligibility to the colony, what, if any, centers would be established as clearing houses, and what men's opinions ought to be accepted for eligibility, expressing his own belief that a medical man should pass upon eligibility.

Dr. R. C. Patterson asked what would become of the patient who had worked for a year and then became totally unfit for work. Would he become a community charge, and would the community support him?

Dr. Bray asked whether or not the colony was for soldiers and sailors alone, and expressed the opinion that there should be an understanding that the colony would retain the privilege of sending back any case accepted for employment, provided such a course was seen fit. He also expressed the opinion that perhaps the tuberculosis case does not wish to be segregated.

(The consensus of opinion of those present, however, seemed to be that this difficulty would be almost negligible.)

Dr. Patterson suggested the addition of reforestation, that is, the growing of seedlings for transplantation, to the interests of the colony, and Dr. Brown suggested the addition of forestry work.

Then, inasmuch as it was the consensus of opinion that a large endowment would be necessary to make good the deficiency in the earning power of the patients, Dr. Brown questioned where the endowment would come from, whether from the Red Cross or some such foundation as the Rockefeller Foundation, etc., and gave it as his opinion that the Red Cross would probably be the best agency to do the work.

* * * * *

Through the courtesy of Dr. F. H. Heise the colony idea was explained to the assembled patients of Trudeau Sanatorium for the purpose of learning what

response might be expected from patients themselves to the opportunities offered in such a community. The following day the project was also explained to groups of patients at Ray Brook, the New York State Sanatorium.

Miss J. S. Whitney has made the following report of the discussion and of interviews with patients:

The first question raised was whether the products of a factory in such a community would be marketable. This brought out considerable discussion, the gist of which was that it depended on the kind of product.

One patient suggested that, since the arrested cases of tuberculosis are not able to work full time, a seven-hour day should be inaugurated, thus giving three and a half hours work in the morning and three and a half in the afternoon.

A particular point was in regard to the class of people who could be induced to come to such a community. One patient said "that it was very well for laboring men, but where would the man who was making \$60 or \$80 a week find employment in such a community?"

Another suggestion made was that they would be branded as tuberculous patients if they went into a community where practically only the tuberculous were admitted. The consensus of opinion, however, was that it would be a great advantage in the first few months after leaving the sanatorium to be in a place where there were ex-patients. They felt that there would be the same incentive and inspiration in a community of that sort that there is at Trudeau at present. If they returned to their own homes they would be branded and shunned.

A young Jew, who was married and had one child, had been a bookkeeper. His home had always been in Brooklyn. He said, "You can count on me and also my wife as being very glad to leave the city and go to a country community." They had always wanted to do it but had never been able to go anywhere in the country where he could find employment.

Later when the formal discussion had closed and most of the patients had left, several remained to get more information about certain points. One young woman came up to us and said she wished to be enrolled now, as the first citizen of that community. The idea seemed to be accepted with enthusiasm, and it was a surprise to Dr. Heise, Dr. Pattison, and myself to see how immediate and spontaneous the favorable reaction was. It almost put upon us an obligation to make the idea a reality.

About 30 patients handed in their names to me as interested in the project. I saw a great many of them that evening by themselves and talked with them separately about it.

One young Virginian who had spent 10 months overseas, had been gassed, and attributed his tuberculosis to this, said he would like to go to such a community and grow up with it and do what he could to favor its development. Prior to going overseas he had been a timekeeper in a big munition factory, making \$75 per month.

A minister who had been a missionary in China would be glad to move to such a community at once. He is a widower and has four children. He felt that it would be the best place for him and also for his children. He said that if there was no opportunity in the beginning for him to practice his own profession, he would be glad to go there and help in any possible way the development of such a plan.

A young doctor, who is now classed as an ex-patient, was very enthusiastic about the plan, and although he said he might not go there, as he had his future plans well arranged, he felt that for most of the patients at Trudeau it would be a great boon.

A young couple, both ex-patients, who expect to marry soon, came in together to talk to me. To both of them it seemed an ideal arrangement in their case, and both of them expressed themselves as willing to go immediately to such a colony were it already established. Their eagerness was pathetic. Both will have to leave Trudeau soon and neither has any definite plans. The girl said that she did not want to go home because she felt sure that not only her friends but her family would consider her almost a leper.

This couple raised the question of whether any cottages would be furnished or not. They seemed to think that it would be a very good idea if some furnished cottages could be rented, and that after a certain amount had been paid, the furniture would become the property of the renter.

Dr. Pattison, in company with Mr. Obenchain, of the bureau of information at Saranac, interviewed several residents of the town. One man was a Jew aged 36. He is a furrier with a wife and four children. He had migrated from Russia to New York City and had lived there two years before coming to Saranac. He had been in business at Saranac for 15 years. His opinion was that if a place was a healthful locality for the tuberculous, it must be a healthful place for well people to live in because greater precautions were taken there against infection. He and his family have kept well; he has made money; owns his own home, and has just bought a new car.

Another Jew, who is a second-hand clothes man, has been living in Saranac for several years. He had previously lived for four or five years in one of the cities of New York State. He thinks he has a good opportunity in business at Saranac, and says he makes a fair living for his family.

Another Jew, aged 37 and single, came from Syracuse to Saranac 14 years ago. He says he makes as much or more here than he did in Syracuse, and would not want to go back to the city.

Still another Jew, who came here from New York City and has lived in Saranac for four years, says he would be the first applicant for a job in such an industrial community. He was formerly in charge of the upkeep of machines in a glove factory at \$35 a week. He is now doing odd jobs of repairing, such as sewing machines, etc. He does not make much here because there is so little call for his kind of work.

At Ray Brook I found the same eagerness in regard to the idea. Many of the younger girls said that they were quite sure their families would move to such a community if it meant an improvement in the girl's health or would be an advantage to her in any way.

Among the married women there were several whose children, sometimes two, three, four, or five in the family, were in orphan's homes, while the mother was at the sanatorium. One woman said her husband had also had tuberculosis and he was not able to do steady work. A home for them in such a community would mean a great deal.

Two Italian women, one of whom spoke very little English, were most enthusiastic about the idea. They had both worked in factories prior to going to the sanatorium and would be glad of an opportunity to do any kind of factory work.

[Extracts from a group of letters written by tuberculous patients to the National Tuberculosis Association concerning the proposition of a tuberculosis community.]

I most heartily indorse the scheme you proposed to-day. Such a community would supply the logical stepping stone to "full-time" work, without which we must acknowledge our physical unfitness or our being tuberculous when applying for work. Either one of these is going to make our return to a useful

life infinitely more difficult. I am about to leave the sanatorium, and a community of this sort would solve my big problem. I know the situation that is confronting me now, because I was cured once before. (A young woman.)

I think it an excellent plan to form a village where tuberculous people can live and find work. For more than two years I have been working four hours a day in the sanatorium at Trudeau. Could I find work in a community such as you propose, my mother could be with me and I could have some home life. (A young woman.)

Personally I should be delighted to be among those privileged to enjoy the advantages to be had by an arrested tubercular patient of a few years spent in a tuberculosis community such as described by Dr. Pattison to-day in his talk to the Trudeau patients.

It seems to me that such an arrangement and such safeguarding of one's health by life in such a place is the only really sensible course to be considered by any arrested tuberculosis patient who realizes the seriousness and insidiousness of tuberculosis. (A young woman.)

It is the most practical plan of help without pauperizing that has ever come to my notice and I would consider it a privilege to be associated with any such undertaking. (A young woman.)

From personal feeling and conversation with others I am thoroughly convinced that the establishment of a community where tubercular patients unable to work full time could find limited work under good living conditions would be a boon very greatly appreciated and that no difficulty would be found in filling such a community to its full capacity. (A young man.)

Your talk of this afternoon in regard to the community you are planning for arrested cases of tuberculosis has made a deep impression upon me, and I must say that the majority with whom I have spoken on the subject agree that the project is highly feasible.

When we consider the number of affected people who leave the cities and strike out for the open, whether it be the West or some place in the mountains, to spend the rest of their lives, where the opportunities are not to be compared, nor so well adapted to their condition as those you propose, I believe there will be little or no difficulty in getting all the people you wish to go to the town under consideration.

There would be some who would hesitate to bring their families to such a community because of a fear of exposing them to tuberculosis, but I believe that the statistics from such places as Saranac, which show that the tubercular mortality among the native population is lower than the average, would soon set such fears at rest.

Your project, I believe, will be a boon to the tubercular, not only, but a welcome relief to physicians of sanatoria, who if advised of the work and kept advised of the progress of the town, would send plenty of arrested cases there, many of whom, I believe, would become permanent residents.

I, for one, would be glad to cast my lot in such a town, and wish you every success that the project may become a reality. (A young man.)

I was deeply impressed with the idea as expressed by Dr. Pattison to-day in regard to inaugurating a tuberculosis community. It appeals to me as being very logical for this reason, besides which there are many others in its favor. From my own case—when I leave this place I will be without a position at which I will be able to make a living equal to that which I made when taken sick. I live in the city of New York, which place can not afford the benefit of outdoor sleeping, much less the pure, clean air of God's own creation, the country. There are many who would not be satisfied to leave the gay white way, not even for the benefit of their health, but you can count my family and myself as one who would gladly accept the opportunity to be a pioneer family in such a community. (A married man.)

This seems to me to be the most encouraging thing I have ever heard of for tubercular patients. I for one am certainly heartily in favor of such a move.

I venture to say that the largest per cent of patients feel as I do about the enterprise. I have been told that I can go back and do a full day's work anywhere I want to, but I am afraid to take the chance of living again with well people and doing as I know I would have to do. So I am leaving this week for Denver and will try to get into some business out there for myself whereby I can comfortably support myself.

I have been for more than a year the bookkeeper for the above sanatorium, but feel that it is up to me to get out into the world and make the best living that I can. The chances are that if it is found out that I am a lunger my chances for good positions will be greatly diminished with business firms. (A young man.)

At present I personally wish there were just such a place that I might turn to, for, although the doctor has recommended that I return to my former position as a school-teacher, I should prefer to forego home life and a high salary in order to insure future good health. (A young woman.)

I think that the plan you have worked out for the solution of the post sanatorium treatment of tuberculosis so transcends in importance any consideration of cost that you ought to proceed absolutely regardless of cost factors. I really believe that some such scheme as you have outlined is the only solution of the problem. After all, what you propose is not revolutionary, merely a step or two further than the many housing projects which have been launched in this country and in England. (An architect who himself has had tuberculosis.)

[Study made by Miss J. S. Whitney, Research Secretary National Tuberculosis Association.]

1. Sanatorium _____	2. Date _____
3. Patient _____	4. Age _____
5. Sex _____	6. Marital state _____
7. Main occupation _____	8. Other occupations _____
9. Family outline: _____	

SUMMARY OF SCHEDULES OBTAINED.

Number of schedules.—One hundred and eleven schedules were secured at two sanatoria; 56 were for men and 55 for women.

Of the total number of schedules 54 were for single men and women, or widows without family; 10 schedules were for single men and women whose immediate families might make a home with the son or daughter; and 47 schedules were for married men and women, making a total of 57 which may be designated as the "family group."

Number of individuals.—In all there were 253 individuals represented, including children and dependent relatives. On the 57 family schedules alone were included 199 individuals, or an average of 3.5 persons to each family.

Average age.—The average age of the patients in the married group was slightly over 30 years, and for the single group 25 years.

Theoretical budget.—A budget of \$1,500 a year, which is a minimum budget for a family of five, was adopted. This is for a family of husband, wife, and three children under 14, making 3.3 units, the children being considered as part units according to their subsistence cost as compared with that of a working man. This means a weekly budget of \$28.85 for a family of five. On this basis the budgets for the various families were made up. If the family was larger than five, the proportionate parts of a unit were added according to the age of the extra members of the family. When there were less than five in the family the proportionate amount was deducted.

Proportion needing assistance in family group.—On the basis of weekly needs outlined above, 25 of the families were found to be able to meet their own cost of living, so that no maintenance would have to be supplied by the community. (The wages used in this compilation were in every case those which the patient or members of his family were receiving just before the illness began.) Many of these 25 families are, of course, those in which the wife was the patient and the normal earning capacity of the husband was unimpaired. In 32 families the total earning capacity of the family would not meet its required budget. Fifty-six per cent, then, of the families scheduled would need assistance from the community.

Amount of maintenance needed in family group.—The total weekly budgets for these 32 families amounted to \$752.78. The total amount of financial assistance needed weekly by them from the community was \$274.06, or 36½ per cent of their total cost of living.

Total yearly cost of maintenance in family group.—On the basis of something over 100 families who would be the pioneer members of the community, there would be practically twice as many as have been scheduled. The maintenance fund shown above would then have to be doubled, making \$548 weekly. This would amount in a year to \$28,496.

Proportion needing assistance in single group.—In the case of single men and women an arbitrary budget of \$16 a week was established. There were only seven in the single group who would not need assistance. In this number are included several women who were waitresses, or in domestic service, and who might earn a living in the employer's family even working on a part-time basis. Forty-seven, or 87 per cent, would need financial assistance.

Amount of maintenance needed in single group.—The weekly needs of the 47 would amount to \$752 and the assistance needed to complete their necessary budgets would total \$265, which is 35 per cent of the necessary cost of living.

Total yearly cost of maintenance in single group.—If this group scheduled were doubled in the community, the weekly amount required would be \$530, which in a year would total \$27,560.

SUMMARY.

Single men and women and family groups would enter about evenly into the community. Eighty-seven per cent of the former and 56 per cent of the latter group would need financial help from the community to assist in their maintenance. The amount required in the single group would be about 35 per cent of the total budget and for the family group about 36½ per cent. The total amount required for both groups for a year would be \$56,056. This amount represents the maximum need since the time covered is an entire year. Experience in the Jewish garment shop shows that patients can resume more than half-time work within 12 months. As they are able to increase their earning capacity the supplementary amount required decreases correspondingly.

The following are the main occupations of the patients scheduled:

Clerical and office work:		Factory operatives:	
Clerks.....	10	Glove	1
Stenographers	9	Knitting	2
Draftsman	1	Woolen clothing.....	4
Bookkeepers	7	Collar	1
		Shoe	3
Professional:		Steel	1
Graduate nurse.....	1	Neckwear	1
Minister	1	Ammunition	1
Physician	1	Miscellaneous	5
Teachers	3	Skilled trades:	
School principal	1	Electrician	1
Illustrator	1	Carpenter	1
Trade and transportation:		Machinists	5
Salesmen	4	Toolmaker	1
Saleswoman	1	Pattern maker.....	1
Railroad brakeman	1	Riveter	1
Railroad engineer.....	1	Millwright's helper.....	1
Motor engineers.....	2	Retoucher	1
Chauffeur	1	Pipe fitter.....	1
Motorman	1	Stove mounter.....	1
Telephone operators.....	3	Printing and publishing:	
Domestic and personal service:		Pressmen	2
Children's nurses.....	3	Folder	1
Waitress	1	Printer.....	1
Dressmaker	1	Lithographer	1
Housewives.....	18	Government service:	
		Army	1

PUBLICATIONS OF THE FEDERAL BOARD FOR VOCATIONAL EDUCATION.

- The Vocational Summary, published monthly by the Federal Board for Vocational Education (vol. 1, No. 1, May, 1918).
- Bulletin No. 1. Statement of Policies.
- *Bulletin No. 2. Training Conscripted Men for Service as Radio and Buzzer Operators in the United States Army (International Code).
- Bulletin No. 3. Emergency Training in Shipbuilding—Evening and Part-Time Classes for Shipyard Workers.
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- Bulletin No. 32. (Reeducation Series No. 6.) The Agricultural and Industrial Community for Arrested Cases of Tuberculosis and Their Families.

All communications should be addressed to

The Federal Board for Vocational Education, Washington, D. C.

* Emergency war training for conscripted and enlisted men.

*Any undertaking however worthy must be preceded by dreams,
We must have first the men who dream dreams and see visions.
Afterwards we are ready for those who can, if they will, convert
the beautiful conceptions into technical perfection so that there
arises an equally beautiful result.*

—Towner.

☆ ☆ ☆

*Dreams grow holy put into action; work grows fair through
starry dreaming,
But where each flows on unmingling, both are fruitless and
in vain.*

—Proctor.





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